



# Flexidermis

**Common name:** Witch Hazel

**Scientific name:** *Hamamelis virginiana*

**INCI name:** Hamamelis Virginiana (Witch Hazel) Leaf Extract

**IECIC 2015 name:** HAMAMELIS VIRGINIANA EXTRACT

# Witch Hazel

Flexidermis



*Hamamelis virginiana* is a small deciduous tree with yellow flowers that is native to the eastern parts of North America. Native Americans used witch hazel for wound healing and eye problems. The ointment has shown good effects on skin injuries and topical inflammation. It is also used as an astringent, which is helpful in the treatment of acne. It is commonly found in skin care products for cleansing skin due to its anti-bacterial properties.



## Uses of Witch Hazel

- Some people apply witch hazel directly to the skin for **itching, pain and swelling (inflammation), eye inflammation, skin injury, mucous membrane inflammation, vaginal dryness after menopause, varicose veins, hemorrhoids, bruises, insect bites, minor burns, acne, sensitive scalp, and other skin irritations.**
- In manufacturing, witch hazel leaf extract, bark extract, and witch hazel water are used as astringents to **tighten the skin.** They are also included in some medications to give those products the ability to **slow down or stop bleeding.** Those medications are used for **treating insect bites, stings, teething, hemorrhoids, itching, irritations, and minor pain.**



Reference: <https://www.webmd.com/vitamins/ai/ingredientmono-227/witch-hazel>

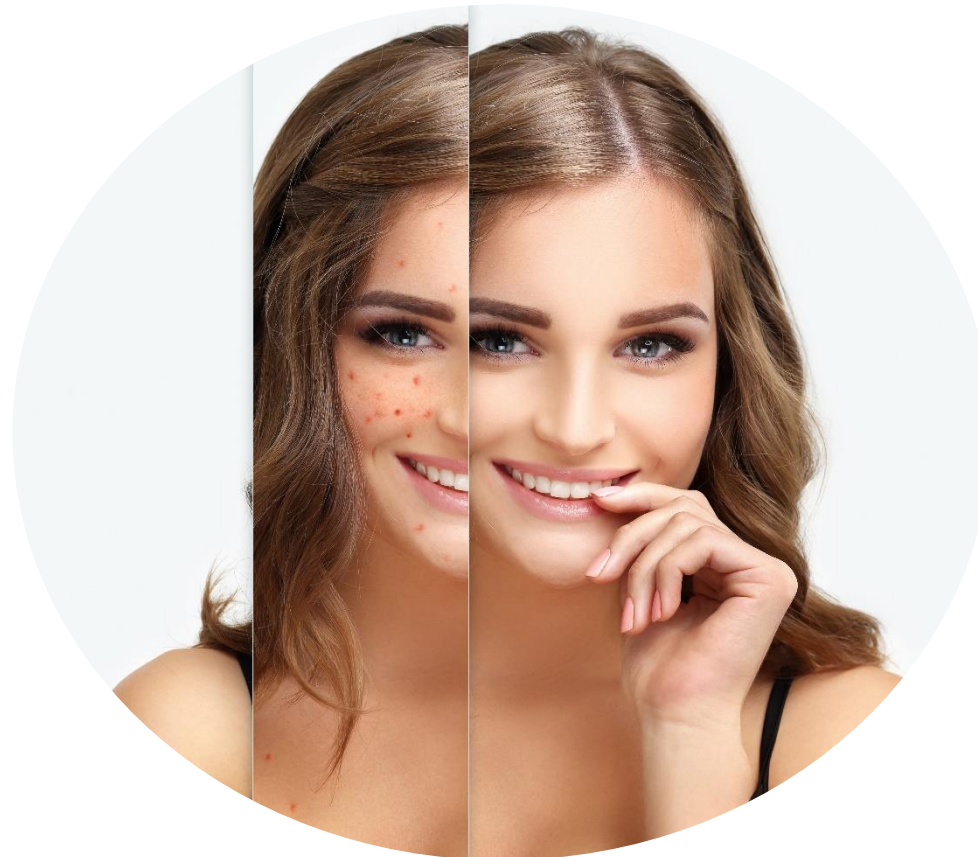
# Skin benefits

Flexidermis

## Acne

Many topical treatments for acne contain witch hazel. Its **astringent properties** make it a good option for people with oily skin.

According to some research, it may also have **skin-soothing properties** that might be beneficial for people with acne.



## Sunburn

Witch hazel has anti-inflammatory properties, which may help reduce discomfort from sunburn.

It may be especially soothing if a person mixes witch hazel with aloe vera, which is another plant and anti-inflammatory agent.

## Rashes

Witch hazel may help soothe rashes on the skin, as it reduces inflammation.

### References:

- Dawid-Pač, R. (2013). Medicinal plants used in treatment of inflammatory skin diseases. *Advances in Dermatology and Allergology/Postępy Dermatologii i Alergologii*, 30(3), 170.
- Chularojanamontri, L., Tuchinda, P., Kulthanan, K., & Pongparit, K. (2014). Moisturizers for acne: What are their constituents?. *The Journal of clinical and aesthetic dermatology*, 7(5), 36.
- <https://www.medicalnewstoday.com/articles/323628#side-effects>



# Efficacy Test

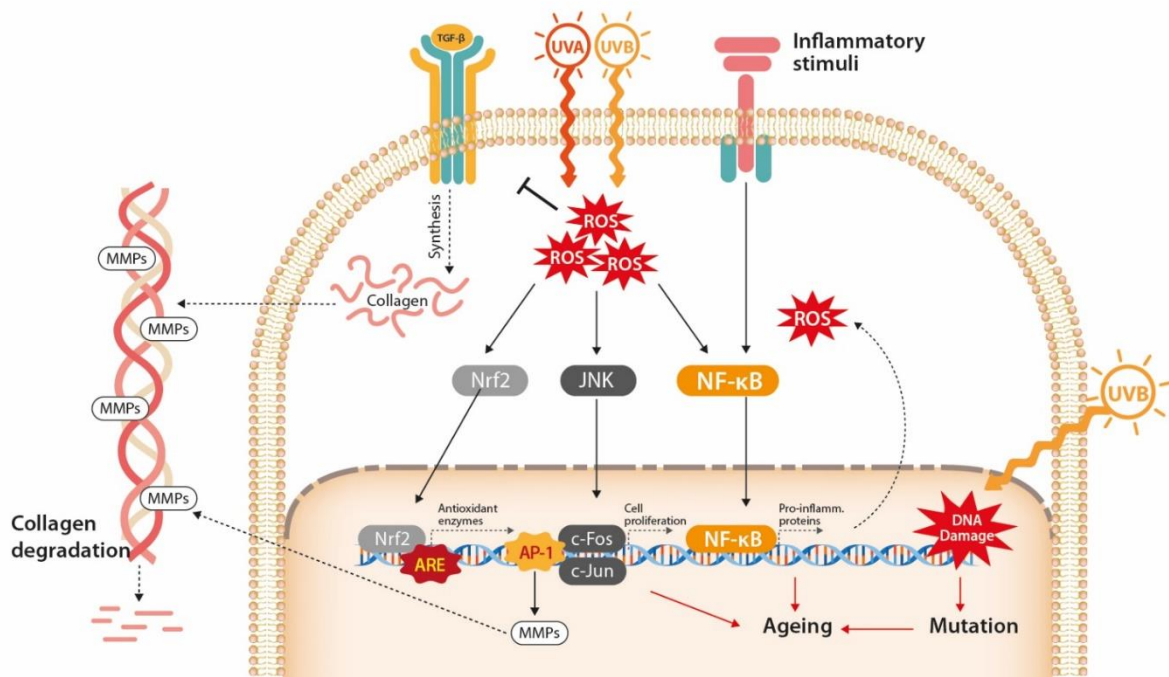
1. Anti-oxidant
2. Skin brightening
3. Anti-wrinkle
4. Hair growth
5. Anti-pollution
6. Anti-microbial



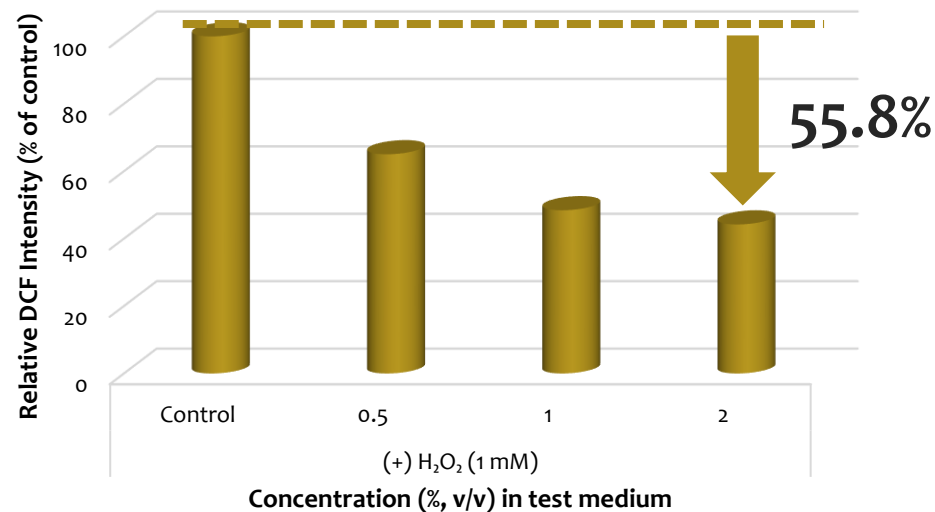
# Antioxidant effects

Flexidermis

Our skin is under attack from many factors in daily life, such as UV, pollution and stress. These factors increase the Reactive Oxygen Species (ROS), which plays a major role in the skin aging process.



ROS inhibition activity (in vitro)

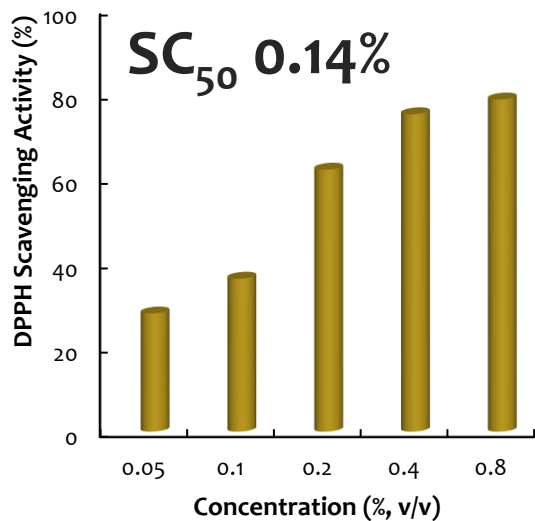


# Antioxidant effects

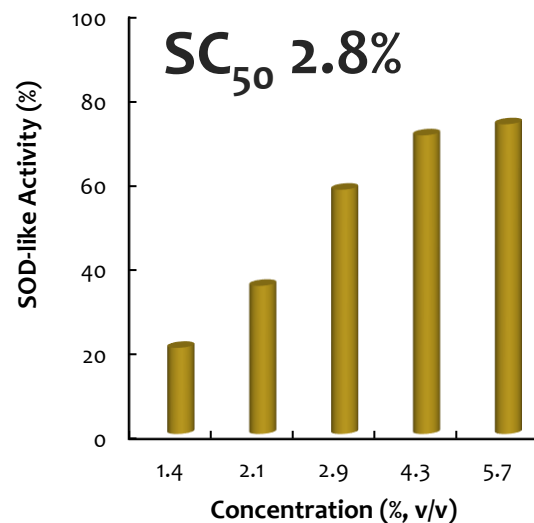
As a result of various antioxidant tests, it was confirmed that Flexidermis has excellent antioxidant efficacy.

Flexidermis

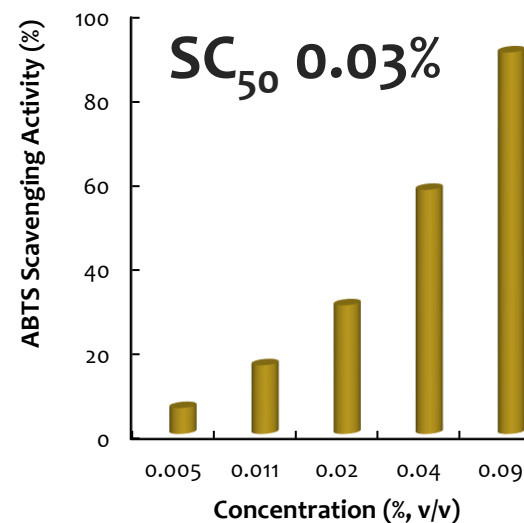
### Free Radical Scavenging Activity



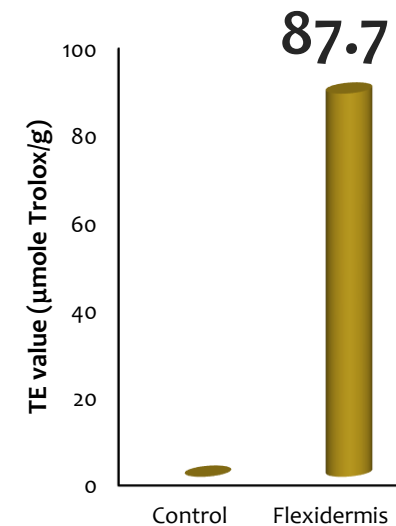
### Superoxide Scavenging Activity



### ABTS Radical Cation Scavenging Activity



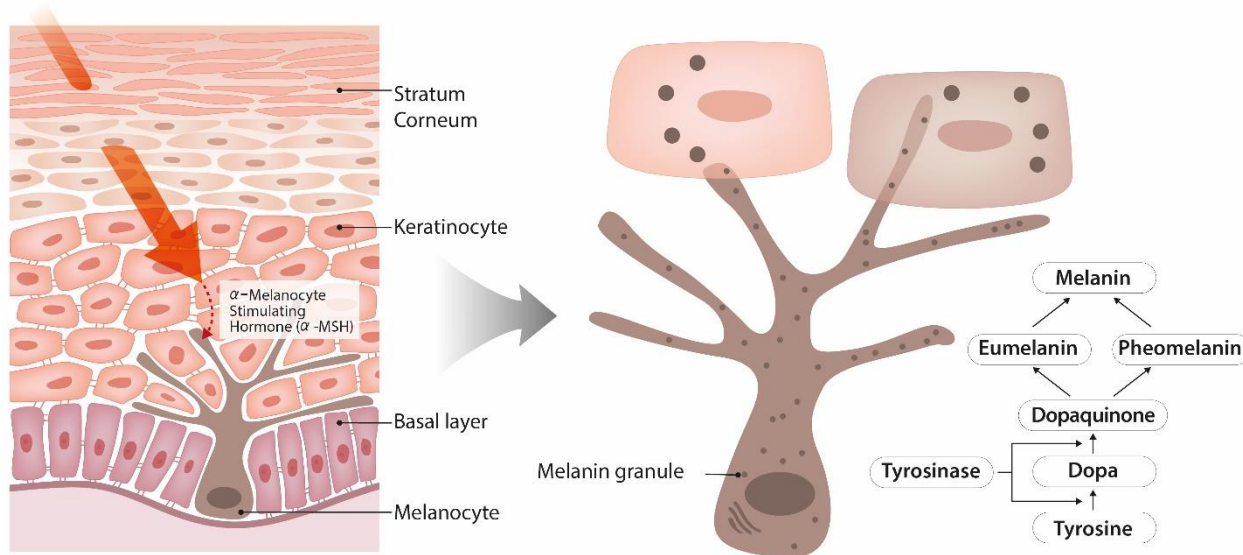
### Oxygen Radical Absorbance Capacity



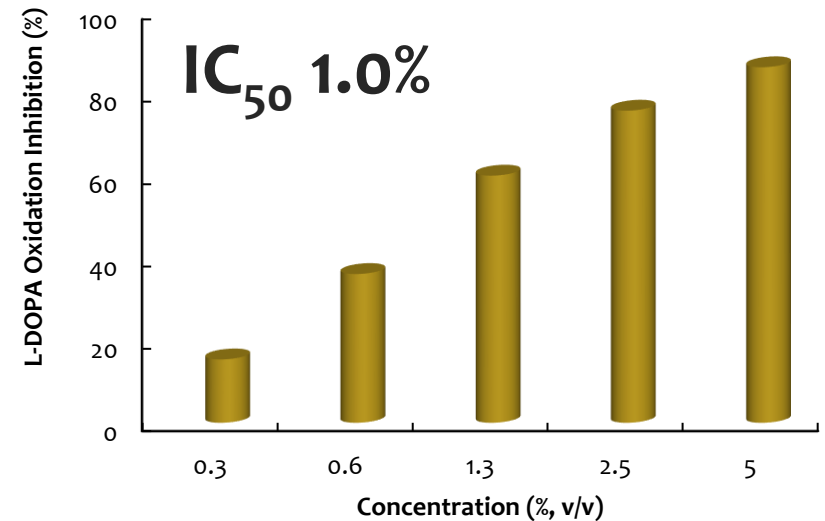
# Skin brightening effects

Flexidermis

In the melanin biosynthesis pathway in the human skin, Tyrosinase reacts with DOPA to promote skin melanin synthesis through the production of DOPA-quinone. Flexidermis has a skin brightening efficacy by inhibiting L-DOPA oxidation.



L-DOPA Oxidation Inhibition Activity (*in tubo*)

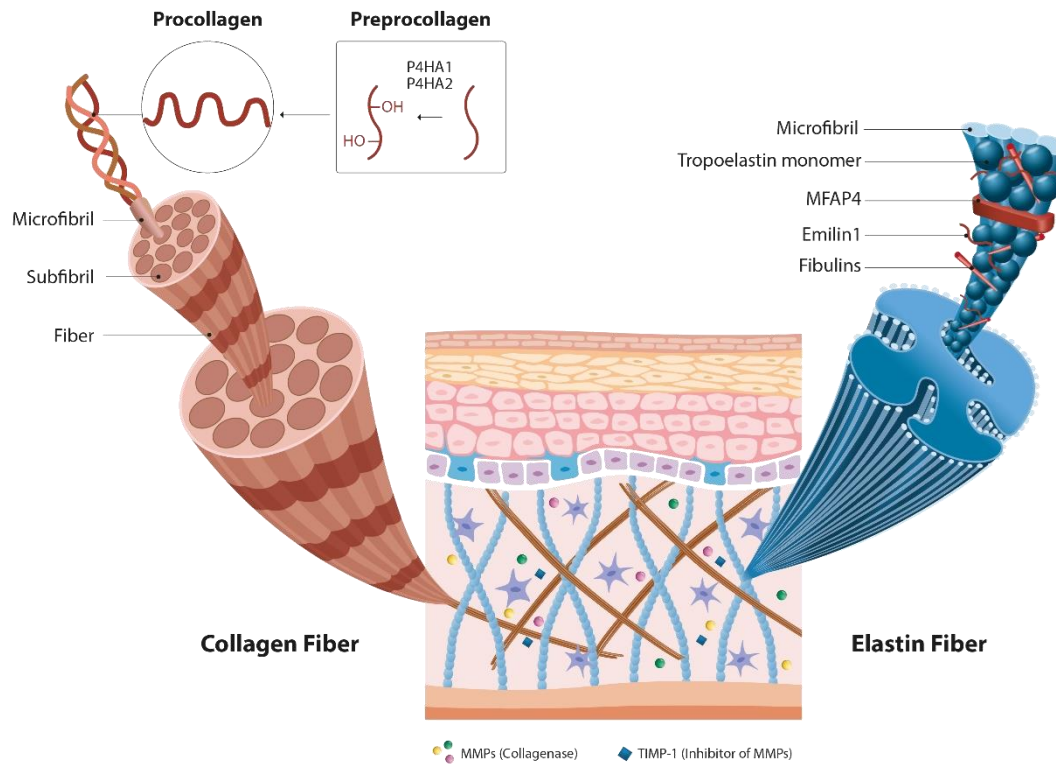




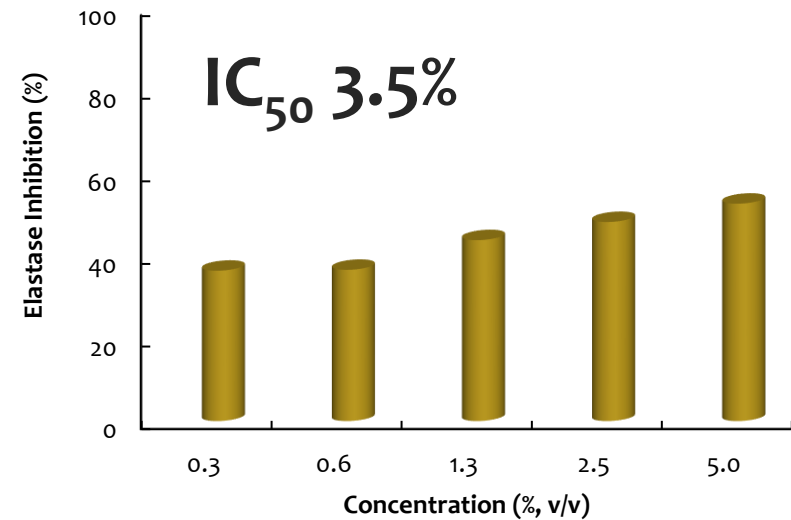
# Anti-wrinkle effects

Flexidermis

The elastin tissue imparts elasticity to the skin and degradation of elastin is one of the causes to wrinkle formation. Flexidermis showed anti-wrinkle efficacy by inhibiting elastase activity.



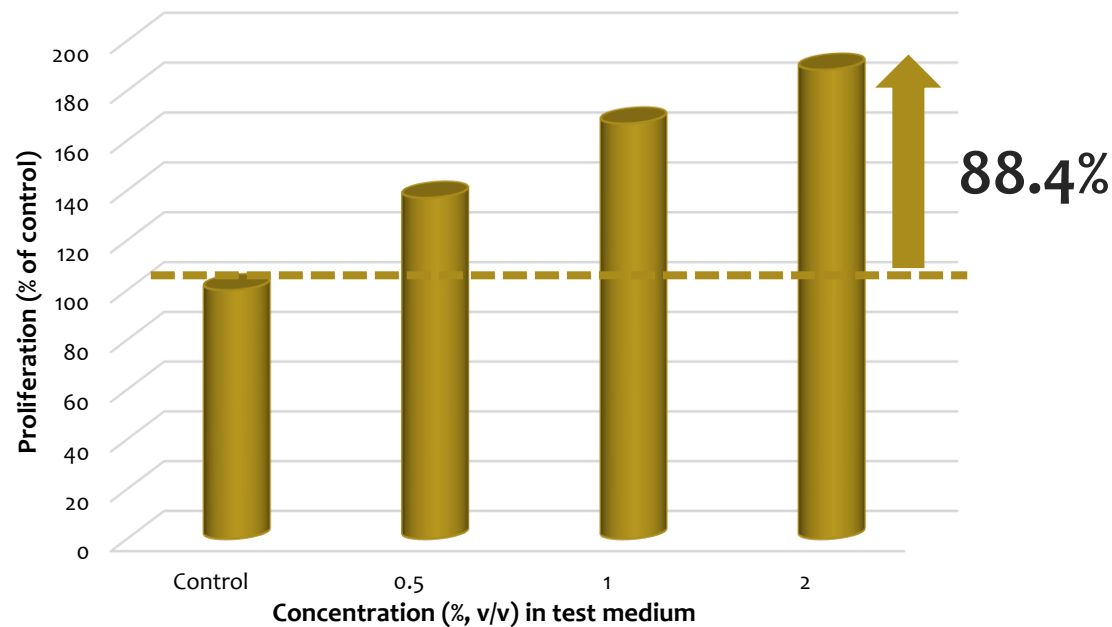
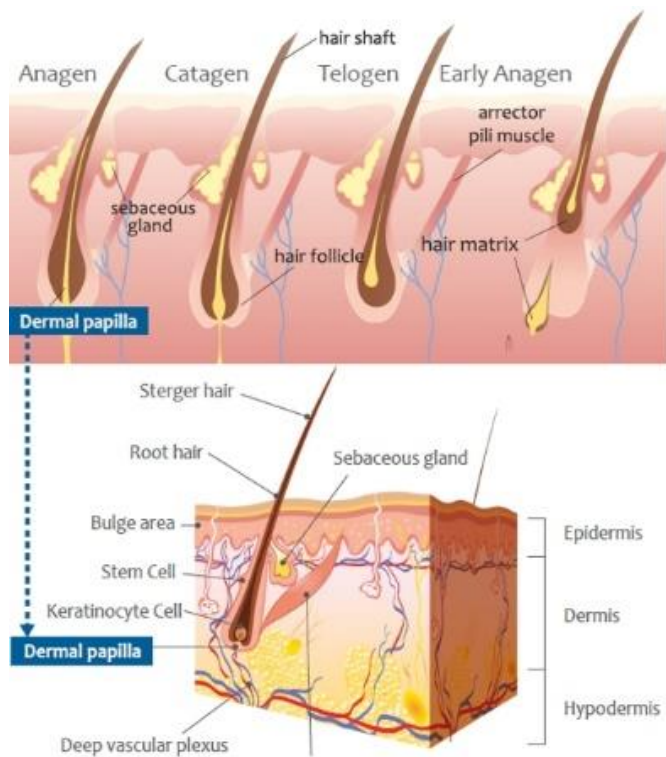
Elastase Inhibition Activity (*in tubo*)



# Hair growth effects

Flexidermis

Human hair growth has a unique repetitive cycle composed of the anagen, catagen, telogen phases, and early anagen. Furthermore in this hair growth, Human Dermal Papilla (HDP) cells play a critical role in regulating hair follicle development and period regeneration. Therefore, this cycle clearly shows the importance of hair cell regeneration, which is the fundamental method to restore lost hair cells. Flexidermis was shown to have excellent hair-growth efficacy by increasing hair cells to 88.4%.

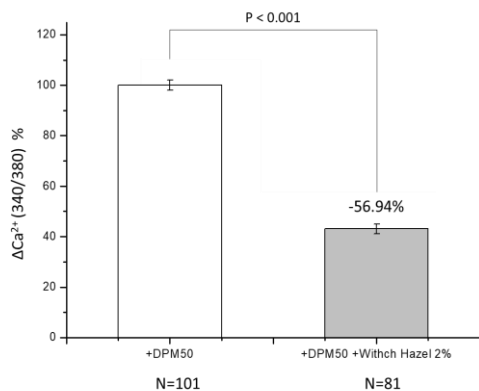
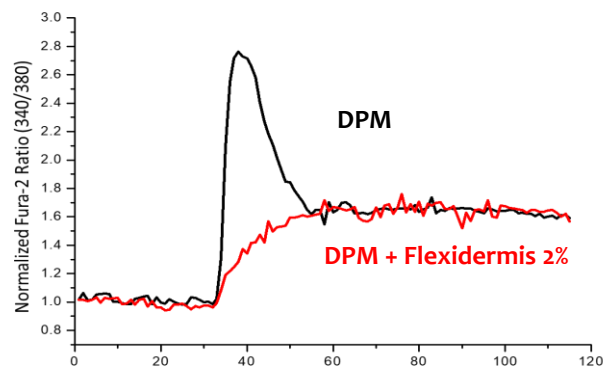


# Anti-pollution effects

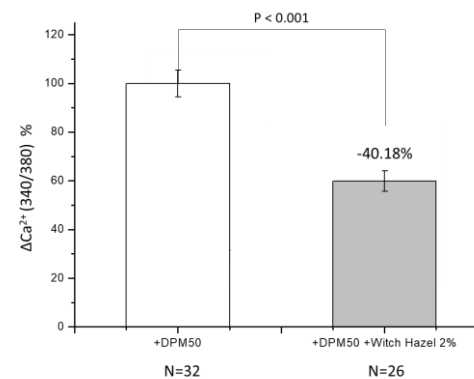
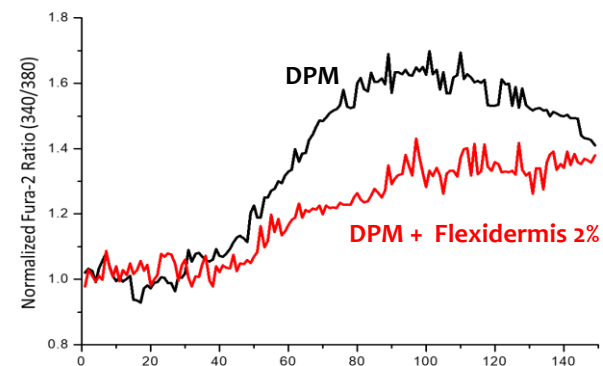
Flexidermis

Intracellular  $\text{Ca}^{2+}$  influx was found to be transiently increased by DPM, and Flexidermis regulated  $\text{Ca}^{2+}$  influx in human keratinocytes. Flexidermis has an anti-pollution effect by inhibiting  $\text{Ca}^{2+}$  influx.

### Human bronchial smooth muscle cells (HBT-SM)



### Human Epidermal Keratinocytes (HaCaT)

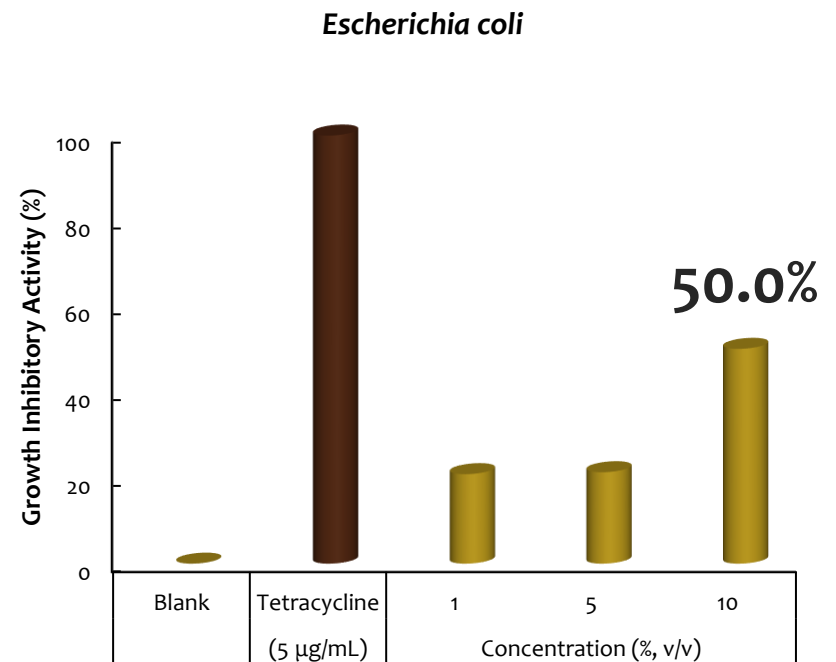
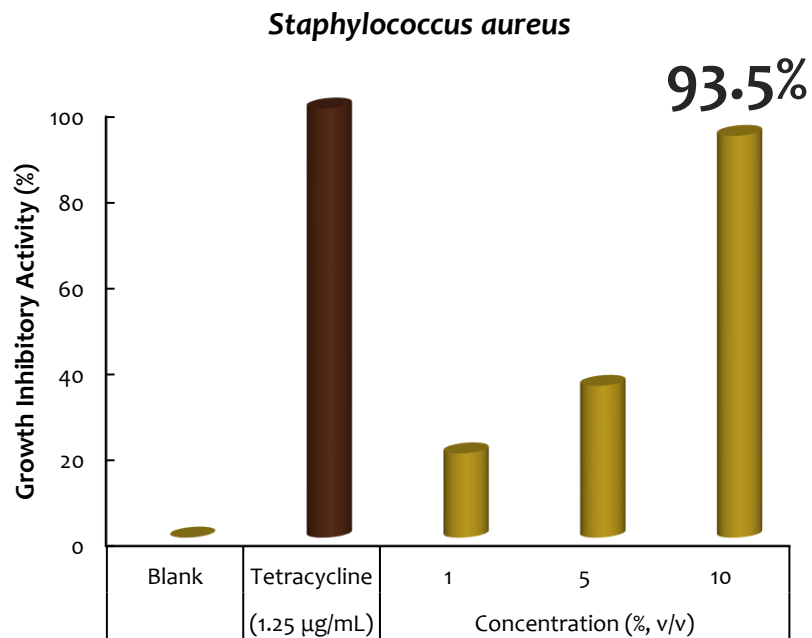




# Anti-microbial effects

Flexidermis

Flexidermis was also shown to have excellent anti-microbial efficacy. According to our test, when treating 10% Flexidermis in the media, it was found to effectively inhibit the growth activity of *Staphylococcus aureus* and *Escherichia coli* by 93.5% and 50.0%, respectively.



# Summary

## Various skin benefits

Acne, Sunburn, Rashes

## Multifunction product

Anti-oxidant  
Skin brightening  
Anti-wrinkle

Hair growth  
Anti-pollution  
Anti-microbial



# Product Information



**Product Name :** Flexidermis

**INCI name :** Hamamelis Virginiana (Witch Hazel) Leaf Extract

**IECIC 2015:** Hamamelis Virginiana (Witch Hazel) Leaf Extract

**Dosage :** 1 – 3%

**Formulation :** Add to the formulation  
when the temperature is lower than 55°C.  
Recommended to add after the cooling process

**Efficacy:** Anti-oxidant, Skin brightening, Anti-wrinkle  
Hair growth, Anti-pollution and Anti-microbial effects





## The Secrets of Caledonia

The Secrets of Caledonia (TSOC) is a supplier of natural cosmetic ingredients inspired by Scottish traditional herbal medicine. Taking advantage of Scotland's biodiversity and working in collaboration with established Scottish herbalists, we aim to provide the most effective and innovative natural ingredients at the highest quality.



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